influenza, reducing morbidity and mortality rates not only for those vaccinated, but also for the entire population by reducing the spread of the virus. In the context of contact network epidemiology, an individual who is located in the center of the network is more likely to become infected. Thus, vaccinating such individuals before others would be more efficient in reducing the influenza burden. **METHODS:** We show that immunizing those who have been infected in the previous season, especially before the peak of the disease, can substantially reduce infection rates for a wide range of influenza viruses. Using the Susceptible Infected Recovered (SIR) compartmental model we ran 2,100,000 simulations, each reflecting two successive influenza seasons over a 1.5 million population contact network based on the Portland population. The second season was checked for a Random Vaccination Policy (RVP) and when using a vaccination policy prioritizing first those who were infected in the previous season especially before the peak (PFIP). **RESULTS:** When no vaccination is offered, individuals who became infected in the previous season have a higher probability of becoming infected in the following season. Accordingly, PFIP can reduce the number of infected by up to 80% compared to RVP, even if the cross-reactivity rate between the viruses of two seasons is as high as 60-80%. We provide a simple tool describing the conditions when each policy should be used. **CONCLUSIONS:** No CDC recommendations have ever considered the effect of a previous season on an individual in determining future vaccination policy. The PFIP can be achieved easily by sending pamphlets, telephone reminders or even family doctor recommendations to those who were diagnosed by the family doctor as suffering from influenza like illness (ILI) in the previous season.

PHS77

CANCER NETWORK PHARMACISTS PERSPECTIVE OF THE FIRST YEAR OF THE CANCER DRUGS FUND

Kilby S

Surrey, West Sussex and Hampshire Cancer Network, Guilford, Surrey, UK

OBJECTIVES: The UK Government has allocated £200 million per year for three years to fund cancer drugs in England which will be managed via the Cancer Drugs Fund (CDF). There are ten CDFs in England which are largely managed by Cancer Network Pharmacists. The objective of this research was to identify from the Cancer Network Pharmacists' perspective what impact the CDF had made in the first year on cancer drug usage, practice, use of resources and also their concerns if the CDF disappeared after three years. **METHODS:** A semi structured questionnaire was developed to capture quantitative and qualitative data relating to changes in oncology drug use, clinical practice and resources for the time period 1st April 2011 to 31st March 2012.This questionnaire was also used to capture information on the Cancer Network Pharmacists concerns if the CDF disappeared after three years. The questionnaire was piloted with three Cancer Network Pharmacists. Telephone interviews were undertaken with Cancer Network Pharmacists covering the ten CDFs. The data collected was assessed and evaluated, using a thematic framework. **RESULTS:** The CDF had led to a significant increase in use of some drugs and clinical practice had changed. Workload for pharmacy both at the cancer networks and in the hospital Trusts had increased. Attendances at clinics had increased creating some capacity issues. The commissioning process for cancer drugs had changed; new drugs were not commissioned unless recommended by NICE. It was considered there would be significant risks if the CDF disappeared after three years as it was not clear how drugs funded by the CDF would then be funded and return to practice pre CDF would be difficult. **CONCLUSIONS:** The CDF had changed clinical practice for the management of certain cancers. If the CDF disappeared in 2014 it was unclear how some drugs would be funded.

PHS78

IMPACT OF EDUCATIONAL INTERVENTION ON CASE MANAGEMENT OF ARI AT COMMUNITY PHARMACIES IN ISLAMABAD PAKISTAN

Hussain A[1], Ibrahim MI[2], Malik M[3]

[1]*Hamdard university, Islamabad, Punjab, Pakistan,* [2]*College of Pharmacy, Qatar University, doha, Qatar,* [3]*University Sains Malaysia, hamdard university, Islamabad, Pakistan*

OBJECTIVES: To evaluate the impact of training of dispensers on the process of case management of ARI at community pharmacies in context to history taking and provision of advice working at community pharmacies in Islamabad, Pakistan. **METHODS:** A randomized, controlled, blinded intervention study was designed and implemented. Before the implementation of intervention, a baseline study was performed to assess the process of case management for ARI at community pharmacies. The study population included all community pharmacy outlets in Islamabad. After data collection, data was analyzed. The result of the study revealed that the overall process of disease management of ARI at community pharmacies in Pakistan is not satisfactory. Pharmacies of Islamabad which were visited in pre intervention phase (118) were divided into two geographical regions A (intervention) and B (control). From which thirty pharmacies were selected randomly from each region. The targeted group of the interventions was drug sellers. Keeping in view the results of the base line study an educational intervention was designed to improve the case management of ARI at community pharmacies in Pakistan. **RESULTS:** No significant difference ($p \leq 0.05$) was seen in the process of history taking and advice provision in case of ARI management at community pharmacies between pre and post control groups. On the other hand significant difference in the process of history taking and provision of advice for ARI was observed in the intervention group before and after training. **CONCLUSIONS:** The study has highlighted that improvements in the current dispensing practices at community pharmacies are possible through appropriate educational interventions. The dispensers have the potential to provide fast and low cost health care to the masses in the country where the presence of doctors and qualified pharmacist is low; to date they are an untapped and underutilized source in the country.

PHS79

THE ANALYSIS OF THE FORMULARY COMMITTEES IN KAZAKHSTANI REGIONS

Pichkhadze G[1], Satbayeva E[1], Akanova A[2]

[1]*Kazakh National Medical University named after S.D. Asfendiyarov, Almaty, Kazakhstan,* [2]*Kazakh National Medical University named after S.D. Asfendiyarov, Almaty, Kazakstan, Kazakhstan*

OBJECTIVES: To analyze the formation of formulary for specific drugs requirements at medical organizations(MOs) in Kazakhstan. **METHODS:** Questionnaires were filled in by the members of the formulary committees (FC) at MOs (79 ones from 4 regions of KZ) with different nosologies which had developed service; morbidity recording; state drug provision system through single distributors (SD). **RESULTS:** FCs mainly consisted of 34 % deputies of head doctors, 23 % pharmacists, 11 % nurses, 10 % head doctors, 8 % doctors, 1 % accountants; in only 1% of the MOs clinical pharmacologists were amongst FCs. Moreover, 72 % had not trained in the drug management; 12 % had experience a long time ago; 10 % improved qualifications in 2009-2010. The lists composed considering the profile and thus the specific needs of the MOs (77 %); lists of drugs provided by the SD (58 %); the Republican Formulary (44 %). 41 % of the MOs had access to the state register; just the third of them had instructions with authorities for the members. Similar number of the MOs had guidance/algorithms for filling in applications and accounts conductions. The applications were filled in considering the extents of previous consumptions (81 %); medical regimen (72 %); the patients' number (70%); left amount of drugs (63%); 94 % highlighted the toxicity to be considered for future lists. Amongst additional factors, experience in specific drugs usage was pointed out (56 %); 18 % claimed the insufficiency of information on tenders and vague choice criteria. Noteworthy, 15 % stated the lobbying of some of drugs manufacturers. **CONCLUSIONS:** Regardless to drugs provision by the state, there are obstacles in the formation of FCs and formularies lists at the MOs: no presence of clinical pharmacologists, no consideration of specific needs, poor training of the personnel.

PHS80

CLINICAL PRACTICE GUIDELINE MAJOR DEPRESSIVE DISORDER FOR GENERAL PRACTITIONERS

Kongsuk T

PRASRIMAHABHODI PSYCHIATRIC HOSPITAL, UBON RATCHATHANEE, UBON RATCHATHANE, Thailand

OBJECTIVES: To develop the clinical practice guideline major depressive disorder for general practitioners in primary and secondary health care setting included the diagnosis, differential diagnosis, severity classification and medical treatments. **METHODS:** A list of 13 key elements of a CPG development process were developed that consisted of: 1) setting the review teams; 2) determining the problems; 3) determining health outcomes; 4) evidence based literature review; 5) meeting to draft the CPG; 6) formulating draft of CPG; 7) apprising the content of CPG by experts; 8) trail phase; 9) evaluating for trail phase; 10) developing the curricular for CPG training; 11) preparing for CPG training; 12) evaluating; and 13) improving the CPG related with evaluated results. **RESULTS:** There were 3 main processes in clinical practice guideline major depressive disorder for general practitioners in primary and secondary health care setting (CPG-MDD-GP) which were 1) Assessment of major depressive disorder (clinical assessment using 9Q screening tool and DSM-TR diagnostic criteria, differential diagnosis, diagnosis for major depressive disorder and coding of diagnosis) 2) Management of major depressive disorder and 3) Management of hospitalized patients. General practitioners were satisfied with the CPG-MDD-GP in trial phase. A total of 416 general practitioners in all provinces were trained to use the CPG-MDD-GP then they would be followed and evaluated. Psychiatrists in psychiatric hospitals/ institutes would be available for consultation from the general practitioners. **CONCLUSIONS:** The CPG-MDD-GP should be distributed to all general practitioners in primary and secondary health care setting. Next step, it would be useful for developing the CPG for MDD in the tertiary health care setting.

PHS81

HEALTH CARE ORGANIZATIONS/SERVICES CLUSTERING: COMPARISON OF SEVERAL TECHNIQUES USING UK DATA

Millier A[1], Mejri S[2], Aballea S[1], Toumi M[3]

[1]*Creativ-Ceutical, Paris, France,* [2]*Creativ-Ceutical, tunis, Tunisia,* [3]*University Claude Bernard Lyon 1, Lyon, France*

OBJECTIVES: Patients access to new drugs is particularly a challenging task in UK. English Primary Care Trusts (PCT) play a key role in facilitating the new drug's entry. The PCTs differ from each others through their behaviors and characteristics. The main purpose of this study is to bifurcate a total of 152 PCT in similar clusters having homogenous behavior, applying several clustering approaches, and to compare the different approaches **METHODS:** All available information about the PCTS is obtained from public sources and one key+ data base. A total of 64 variables were identified and classified into 5 groups according to population's profile, prescription and patient's characteristics, economic, financial as well as organizational criteria. We applied three kinds of clustering approaches: the two first, namely k-means (implemented both directly and indirectly) and Hierarchical Agglomerative Clustering (HAC) are traditional ones while the third, namely Self Organizing Map (SOM) is a variant of neural network architectures. Finally, contingency analysis and khi-square statistics were considered to encircle both dependencies and similarities between clusters **RESULTS:** Preliminary estimates have identified five clusters (for each method) that are different in their intrinsic characteristics. Contingency results reflect strong dependence between the direct k-mean and both HAC and SOM: indeed clusters are not very widely scattered between them. The chi-square (p-value) test corroborates their homogeneity. The indirect K-means reflects heterogeneity in cluster's dispersions also confirmed by

the chi-square test **CONCLUSIONS:** Despite the fact that clusters are generated from different approaches and have no similar characteristics, a plausible correspondence seems to develop between them. Thus, our investigations may help in identifying countless promising market strategies facilitating the access of new drugs according to UK regional standards.

PHS82

DETERMINANTS OF HEALTH SERVICE UTILIZATION IN URBAN PAKISTAN

Jahangeer RA

Pakistan Institute of Development Economics (PIDE), Islamabad, Pakistan

OBJECTIVES: To examine inequalities in health service utilisation in urban Pakistan. This analysis investigates how household economic status, duration of illness and distance to a provider influence health service utilisation in Pakistan. **METHODS:** The study uses data from the Pakistan Socioeconomic Survey (PSES) and analysis is based on 1,407 individuals who belong to 855 urban households. Health care providers are classified into public hospitals, other public providers, private doctors/clinics and other private providers. Household economic status is measured by a wealth index constructed using data from the survey on ownership of durable assets and housing conditions. Principal components analysis (PCA) is used to construct the index. Multinomial logistic regression is used to investigate the effects of various characteristics of individuals/households on health service utilisation in Pakistan. **RESULTS:** Overall, 79.6% of those reporting any health complaint sought health care. A large gap in health service utilisation exists between poorest patients (60.5%) and richest patients (84.9%). Almost three-fourth patients visited private providers; 57.3% visited private doctors/clinics and 15.7% visited other private providers. The remaining one-fourth patients visited public providers (19.7% visited public hospitals and 7.2% other public providers). Multinomial logistic regression reveals that poorest patients are significantly more likely ($p<0.10$) to visit public hospitals whereas patients of poorest, poor, middle and rich households are significantly less likely to visit private doctors/clinics compared to members of richest households controlling for other factors such as education, occupation, duration of illness, distance to a provider and residence. An additional day of illness significantly ($p<0.01$) increases the likelihood of visiting public hospitals and private doctors/clinics. The distance travelled to visit a provider shows a significant positive ($p<0.01$) and negative association with visiting public hospitals and other private providers respectively. **CONCLUSIONS:** Large gaps exist in health service utilization in urban Pakistan.

PHS83

POTENTIAL TIME SAVINGS WITH RITUXIMAB SUBCUTANEOUS (SC) INJECTION VERSUS RITUXIMAB INTRAVENOUS (IV) INFUSION: RESULTS FROM INTERVIEWS AT 13 EUROPEAN SITES AS PART OF A TIME AND MOTION STUDY (T&M)

De cock E[1], Carella AM[2], Tao S[3], Wiesner C[4]

[1]*United BioSource Corporation, Barcelona, Spain,* [2]*KRCSS AOU, San Martino, Italy,* [3]*United BioSource Corporation, Dorval, QC, Canada,* [4]*F. Hoffmann-La Roche Ltd., Basel, Switzerland*

OBJECTIVES: Generate preliminary estimates of active health care professional (HCP) time required /potential time and cost savings between SC vs. IV rituximab processes at the care unit and pharmacy in sites participating in T&M sub-study to MO25455 trial (ClinicalTrials.gov identifier NCT01461928). **METHODS:** As part of an ongoing multi-country, multi-centre, prospective, T&M study run as a sub-study to MO25455, one interview with a nurse and pharmacy member was conducted per site, using a structured questionnaire to elicit practice pattern flow and time estimates for rituximab-related tasks for both IV and SC processes. Estimates of SC injection time were obtained from the Spark-Thera Phase Ib trial (BP22333) (in the absence of staff-elicited time estimates). Estimated total time/cost was calculated as the sum of individual task times/costs. UK salary costs were assumed. Results were pooled and descriptive statistics were calculated. **RESULTS:** Median total HCP time for IV vs. SC processes was estimated at 57 and 26 minutes, respectively, equivalent to approximately £79 and £37 (estimated 54% reduction with SC). For IV, process time is taken up by premedication (27%) and rituximab pharmacy reconstitution (18%), with the remaining 55% distributed across other care unit tasks. For SC, premedication (57%), injection (24%) and rituximab pharmacy dispensing (19%) constitute the whole process. Potential time savings are expected because of avoiding tasks related mainly to infusion line (dis)connection, infusion initiation/dose escalations, and IV pharmacy reconstitution, which is only partially being replaced by SC injection. **CONCLUSIONS:** A switch from IV to SC rituximab potentially results in important care unit and pharmacy time savings to be reinvested in improving overall patient care. Patients could potentially be moved out of the chemotherapy care unit to receive SC administration in other settings and free up valuable chair time, thereby increasing the unit's throughput and overall efficiency. Data of the T&M study is awaited.

PHS84

ANALYZING PHARMACEUTICAL EXPENDITURE IN GREECE:UNWINDING ARIADNE'S CLUE

Siskou O[1], Kaitelidou D[2], Schneider M[3], Kalogeropoulou M[1], Tsavalias K[1], Passaloglou S[4], Kouli E[1], Galanis P[1], Kontozamanis V[1], Liaropoulos L[1]

[1]*National and Kapodistrian University of Athens, Athens, Greece,* [2]*National and Kapodistrian University of Athens, Athnes, Greece,* [3]*BASYS, Augsburg, Germany,* [4]*Novartis Hellas, Metamorfosi Athens, Greece*

OBJECTIVES: To compile pharmaceutical expenditure in Greece by financing scheme and type of provider, in order to investigate areas that cost containment measures could be monitored effectively. **METHODS:** The method used for the estimation of pharmaceutical expenditure is based on the System of Health Accounts 2011 set by OECD, EUROSTAT, and WHO, taking into consideration the national needs for data reporting both in outpatient and inpatient settings. Data were reported by type of provider, including hospital pharmacies, Social Security Funds (SSF) pharmacies, private pharmacies and local authorities social pharmacies as well as by financing schemes, including SSFs, private payments and NHS payments. Additionally, pharmaceutical data are analysed using the new international classification of Factors of Health Care Provision. Estimates were obtained for 2009 & 2010. **RESULTS:** Total pharmaceutical expenditure-TPE (outpatient & inpatient) in Greece, decreased by 9,3% between 2009 & 2010. Pharmaceutical outpatient expenditure covered by SSF was estimated at €5.1 bl for 2009 (2.2% of GDP) and €4.46 bl for 2010 (2% of GDP). Less than 8% of outpatient pharmaceutical expenses covered by SSF, concern pharmaceuticals dispensed by NHS & SSF pharmacies. These public pharmacies dispense expensive pharmaceuticals (for serious and chronic diseases) at significantly lower prices than private pharmacies. Inpatient pharmaceutical expenses decreased by 9,1% (€1.2 bl in 2009 and €1.1 bl in 2010), representing 15.3% of total pharmaceutical expenditures (outpatient and inpatient), a proportion similar to the mean of other EU countries estimated at about 17%. Measures to control the volume of consumption were recently introduced via e-prescribing and the set up of controlling mechanisms. **CONCLUSIONS:** Reductions in pharmaceutical expenditure are correlated mainly to price reductions and less to a decrease in volume of consumption. Measures concerning pharmaceutical cost containment have to be reorganised not only concerning price and volume but also concerning new –innovative ways of distributing pharmaceuticals.

PHS85

THE COST OF PUBLIC CANCER PREVENTION IN ALBERTA

Jacobs P[1], Moffatt J[2]

[1]*Institute of Health Economice, Edmonton, AB, Canada,* [2]*Institute of Health Economics, Edmonton, AB, Canada*

OBJECTIVES: We provide an estimate of public expenditures on cancer prevention in Alberta. Our estimate covers all three levels of government – federal, provincial, and municipal. **METHODS:** Public cancer prevention is a government activity whose purpose is to expressly reduce the future incidence of cancer. As part of a wider initiative, we conducted a survey of ministries, in search of all programs whose express purpose was to promote health and prevent illness. We searched web pages, ministry annual reports and federal and provincial budget papers. We collected data on program type, type of intervention, and program cost. We then verified the results with each ministry. We sorted the data by risk factors, and selected those risk factors that were related to cancer. **RESULTS:** Expenditures for those risk factors that are related to cancer are shown in Table 1. In total expenditures on these risk factors were $206. Of this, about two-thirds were expenditures that were incurred by non-health, provincial ministries. The risk factor with the highest preventive expenditures was environmental health. **CONCLUSIONS:** In Alberta, all levels of government spent $206 per person on risk factors that can prevent cancer, mostly in the long run. Without a cost – effectiveness analysis, we cannot say that this amount is too much or too little. However with this data, and a cost effectiveness analysis, we can in fact say whether we are spending too much or too little.

PHS86

A POPULATION-BASED STUDY OF THE RESOURCE UTILIZATION AND COSTS OF TREATING RESECTABLE NON-SMALL CELL LUNG CANCER

Mahar AL, Johnson A

Queen's University, Kingston, ON, Canada

OBJECTIVES: To describe resource utilization and costs associated with treating surgically managed non-small-cell lung cancer (NSCLC) patients in Ontario, Canada; to compare characteristics and average costs of patients treated with adjuvant therapy to surgery alone; and to compare resource utilization and costs across health care regions. **METHODS:** A population-based retrospective cohort study of surgically resected NSCLC patients, diagnosed from Ontario Cancer Registry between 2004 and 2006, was identified using administrative health care data. Patients were followed for four years from date of surgery (to represent the cohort immediately affected by the change in clinical practice -- recommended adjuvant cisplatin-based treatment). Cost estimates (2001 CAN dollars) were derived from administrative data and the literature. **RESULTS:** Patients who received adjuvant chemotherapy in addition to surgery were younger and had a less severe burden of co-morbid disease than patients treated with surgery alone ($p<0.001$). Geographic variation was found with respect to age, Charlson score, and socioeconomic status. Rates of chemotherapy, the proportion of patients who received any imaging scans, hospitalizations, specialist visits, emergency room visits, mean number of imaging scans, general physician visits, and blood transfusions all varied significantly among geographic regions. The average cost of a patient treated with surgery and adjuvant chemotherapy was $36,617.70 and was significantly higher than the average cost of a patient treated with surgery alone ($29,071.60) ($p<0.0001$). Among regions, the average cost of patients treated with chemotherapy was similar, while the average cost of patients treated with surgery alone varied significantly ($p=0.0008$). **CONCLUSIONS:** Differences exist in the average cost of treating a resectable NSCLC patient with surgery and adjuvant chemotherapy in comparison with surgery alone. This phase IV population-based study demonstrates a similar cost per patient as evidenced in the randomized controlled trials. Understanding why these patients incur higher average costs is important with respect to delivering cost-effective treatment.

PHS87

COST OF DIABETES IN INSULIN-TREATED PATIENTS IN BULGARIA

Doneva M[1], Valov V[2], Borissova AM[3], Tankova T[3], Savova A[1], Manova M[1], Petrova G[4], Czech M[5]